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TITLE: Vascular endothelial growth factor-b and dna coding therefor

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CLAIMS:

What is claimed is:

1. An isolated nucleic acid which codes for a protein which comprises the amino acid sequence:

Pro-Xaa-Cys-Val-Xaa-Xaa-Xaa-Arg-Cys-Xaa-Gly-Cys-Cys

(SEQ ID NO:16) and has the property of promoting proliferation of endothelial cells or mesodermal cells, said nucleic acid being selected from the group consisting of the DNA of SEQ ID NO:1, the DNA of SEQ ID NO:4, the DNA of SEQ ID NO:6, the DNA of SEQ ID NO:8, the DNA of SEQ ID NO:10, the DNA of SEQ ID NO:12, the DNA of SEQ ID NO:14, and nucleic acids which hybridize at 42.degree. C. in 50% formamide, 5.times.0.75M sodium chloride and 0.075M sodium citrate pH 7.0 or 5.times. buffer composed of 0.9M sodium chloride, 0.05M sodium phosphate, pH 7.7 and 0.005M ethylene diamine tetraacetic acid, 1% to 2% sodium dodecyl sulfate, 5 to 10.times. Denhardt's solution and 100 .mu.g/ml of salmon sperm DNA with at least one of the foregoing sequences.

2. An isolated nucleic acid according to claim 1, wherein said nucleic acid is a cDNA.

3. An isolated nucleic acid according to claim 1, comprising the sequence set forth as SEQ ID NO:1.

4. An isolated nucleic acid according to claim 1, wherein said nucleic acid is a mammalian DNA.

5. An isolated nucleic acid according to claim 4, wherein said nucleic acid is a murine DNA.
6. An isolated nucleic acid according to claim 4, wherein said nucleic acid is a human DNA.
7. An isolated nucleic acid according to claim 1, wherein said nucleic acid codes for a protein which promotes proliferation of vascular endothelial cells.
8. An isolated nucleic acid according to claim 1, comprising the sequence set forth as SEQ ID NO:4.
9. An isolated nucleic acid according to claim 1, comprising the sequence set forth as SEQ ID NO:6.
10. An isolated nucleic acid according to claim 1, comprising the sequence set forth as SEQ ID NO:8.
11. An isolated nucleic acid according to claim 1, comprising the sequence set forth as SEQ ID NO:10.
12. An isolated nucleic acid according to claim 1, comprising the sequence set forth as SEQ ID NO:12.
13. An isolated nucleic acid according to claim 1, comprising the sequence set forth as SEQ ID NO:14.
14. A vector comprising a nucleic acid according to claim 1, which nucleic acid is operably linked with a promoter sequence.
15. A vector according to claim 14, wherein said vector is a eukaryotic vector.
16. A vector according to claim 14, wherein said vector is a prokaryotic vector.
17. A vector according to claim 14, wherein said vector is a plasmid.
18. A host cell transformed or transfected with a vector according to claim 14.
19. A host cell according to claim 18, wherein said host cell expresses a protein having the property of promoting proliferation of endothelial or mesodermal cells.
20. A transfected host cell according to claim 18, wherein said host cell is a eukaryotic cell.
21. A transfected host cell according to claim 18, wherein said host cell is a COS cell.
22. A transformed host cell according to claim 18, wherein said host cell is a prokaryotic cell.

23. A transformed host cell according to claim 18, wherein said host cell is a 293EBNA cell.

24. A transformed host cell according to claim 18, wherein said host cell is an insect cell.

25. A means for amplifying a vascular endothelial growth factor-B (VEGF-B) polynucleotide in a test sample, said means comprising a polymerase and at least one pair of primers complementary to a nucleic acid according to claim 1, for amplifying the VEGF-B polynucleotide by polymerase chain reaction in order to facilitate a sequence comparison of the VEGF-B polynucleotide with the nucleic acid according to claim 1.

26. A host cell transformed or transfected with a vector comprising a nucleic acid sequence according to claim 1, operatively linked to a promoter, such that said host cell expresses a VEGF-B protein.

27. A means for amplifying a VEGF-B polynucleotide in a test sample, said means comprising at least one pair of primers complementary to a nucleic acid according to claim 1.

28. A method of making a vector which expresses VEGF-B protein, said method comprising incorporating an isolated nucleic acid according to claim 1, into said vector in operatively linked relation with a promoter.

29. An isolated nucleic acid molecule which encodes a human VEGF-B molecule, wherein said isolated nucleic acid molecule hybridizes to at least one nucleic acid molecule selected from the group consisting of SEQ ID NO:1, SEQ ID NO:4, SEQ ID NO:6, SEQ ID NO:8 and SEQ ID NO:12, at 42.degree. C. in 50% formamide, 5.times.0.75M sodium chloride and 0.075M sodium citrate pH 7.0 or 5.times. buffer composed of 0.9M sodium chloride, 0.05M sodium phosphate. pH 7.7 and 0.005M ethylene diamine tetraacetic acid, 1% to 2% sodium dodecyl sulfate, 5 to 10.times. Denhardt's solution and 100 .mu.g/ml of salmon sperm DNA.

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